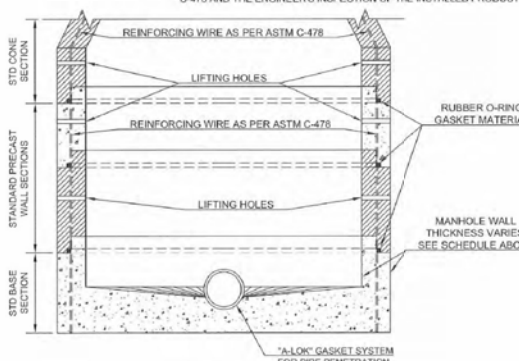
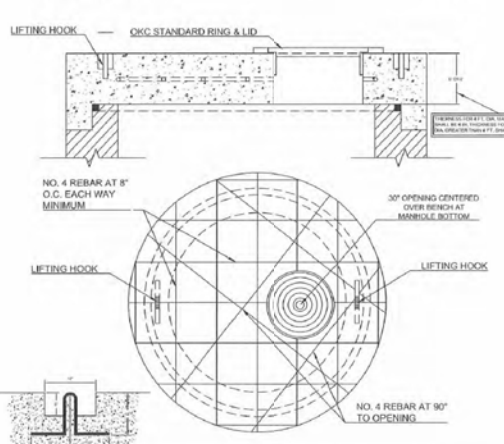
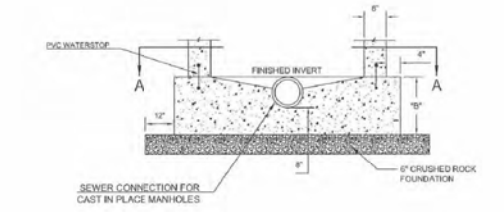
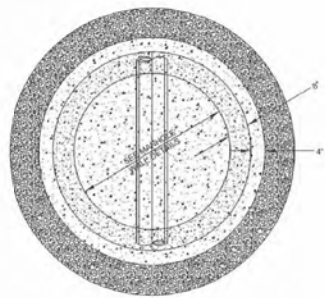
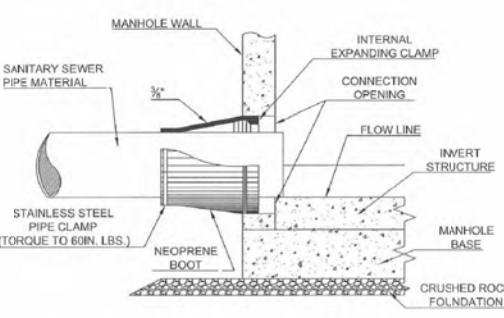
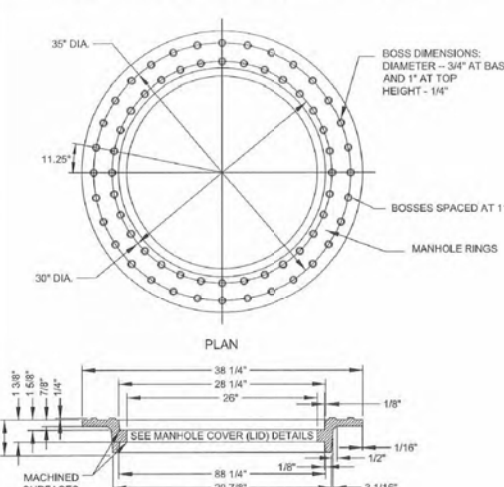
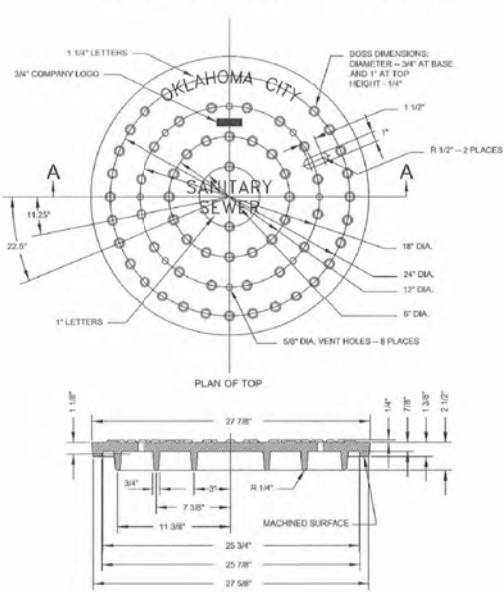
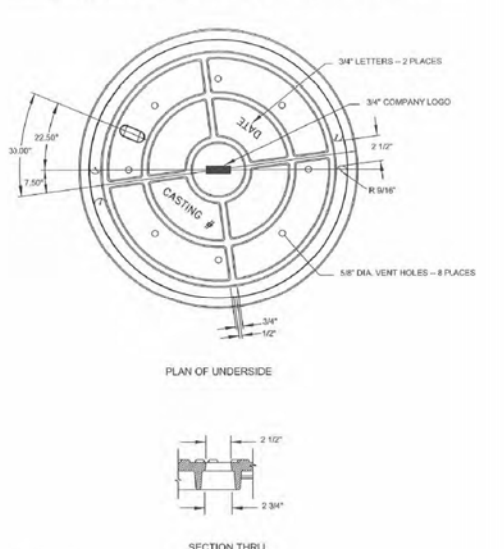



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<h3>SANITARY SEWER STANDARD DETAIL</h3> <p>1. MANHOLES SHALL BE CONSTRUCTED AS SPECIFIED IN ASTM C-478</p> <p>2. THE MINIMUM WALL THICKNESS IS SPECIFIED IN THE FOLLOWING TABLE AND SHALL NOT BE LESS THAN ONE-TWELFTH (1/12) OF THE INTERNAL DIAMETER OF THE LARGEST CONE OR RISER OR FIVE-INCHES (5") WHICHEVER IS GREATER.</p> <table border="1"> <tr> <th>MANHOLE INTERNAL DIAMETER (FEET)</th> <th>MINIMUM WALL THICKNESS (INCHES)</th> </tr> <tr> <td>4</td> <td>5</td> </tr> <tr> <td>5</td> <td>5</td> </tr> <tr> <td>6</td> <td>6</td> </tr> <tr> <td>7</td> <td>7</td> </tr> <tr> <td>8</td> <td>8</td> </tr> </table> <p>3. ALL LIFTING HOLES PROVIDED IN EACH SECTION SHALL BE REPAIRED WITH A MIXTURE OF CEMENT AND SAND GROUT FIRMLY PACKED INTO ENTIRE ORIFICE.</p> <p>4. ALL INSIDE SURFACES OF PRECAST MANHOLES SHALL BE COATED WITH A DRY FILM THICKNESS OF NOT LESS THAN EIGHT (8) MILS OF TNEPEC SERIES 89 HI-BUILD EPOXYLINE II, OR APPROVED EQUAL.</p> <p>5. WHEN DIRECTED BY THE ENGINEER, A SET OF THREE (3) CYLINDERS, THREE-INCHES (3") IN DIAMETER SHALL BE CUT FROM RANDOMLY SELECTED MANHOLES AND TESTED FOR COMPRESSIVE STRENGTH.</p> <p>6. ACCEPTANCE OF THE MANHOLE STRUCTURES SHALL BE BASED ON THE CONFORMANCE AND PERFORMANCE OF MATERIALS REQUIRED IN ASTM C-478 AND THE ENGINEER'S INSPECTION OF THE INSTALLED PRODUCT.</p>  <p><b>PRECAST MANHOLE WALL DETAIL</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	MANHOLE INTERNAL DIAMETER (FEET)	MINIMUM WALL THICKNESS (INCHES)	4	5	5	5	6	6	7	7	8	8	<h3>SANITARY SEWER STANDARD DETAIL</h3> <p>1. MANHOLE TOPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478 LIFTING HOOPS SHALL BE CONSTRUCTED AS PER MANUFACTURER'S RECOMMENDATION.</p> <p>2. ALL INSIDE SURFACES OF PRECAST FLAT TOP SHALL BE COATED WITH A DRY FILM THICKNESS OF NOT LESS THAN EIGHT (8) MILS OF TNEPEC 89 HI-BUILD EPOXYLINE II, OR APPROVED EQUAL.</p> <p>3. WHEN DIRECTED BY THE ENGINEER, A SET OF THREE (3) CYLINDERS, THREE-INCHES (3") IN DIAMETER SHALL BE CUT FROM RANDOMLY SELECTED MANHOLE TOPS AND TESTED FOR A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.</p> <p>4. ACCEPTANCE OF THE MANHOLE TOP STRUCTURE SHALL BE BASED ON THE CONFORMANCE AND PERFORMANCE OF MATERIALS REQUIRED IN ASTM C-478 AND THE ENGINEER'S INSPECTION OF THE INSTALLED PRODUCT.</p>  <p><b>PRECAST REINFORCED CONCRETE FLAT SLAB MANHOLE TOP</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	<h3>SANITARY SEWER STANDARD DETAIL</h3>  <p><b>SCHEDULE OF THICKNESS</b></p> <table border="1"> <tr> <th>PIPE DIAMETER</th> <th>"8"</th> </tr> <tr> <td>8"</td> <td>1'-0"</td> </tr> <tr> <td>10"</td> <td>1'-10"</td> </tr> <tr> <td>12"</td> <td>2'-1"</td> </tr> <tr> <td>15"</td> <td>2'-4"</td> </tr> <tr> <td>18"</td> <td>2'-6"</td> </tr> <tr> <td>21"</td> <td>3'-0"</td> </tr> <tr> <td>24"</td> <td>3'-3"</td> </tr> </table>  <p><b>CAST-IN-PLACE CONCRETE MANHOLE BASE SECTION</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	PIPE DIAMETER	"8"	8"	1'-0"	10"	1'-10"	12"	2'-1"	15"	2'-4"	18"	2'-6"	21"	3'-0"	24"	3'-3"	<h3>SANITARY SEWER STANDARD DETAIL</h3> <p>NOTE:          1. ALL PIPE CLAMPS SHALL BE STAINLESS STEEL          2. NEOPRENE EPDM BLENDED COMPOUND          BOOT SHALL MEET ASTM C-923</p> <table border="1"> <thead> <tr> <th>SUGGESTED PIPE S.D. RANGE (IN.)</th> <th colspan="4">HOLE &amp; BOOT DIAMETER DIMENSIONS</th> </tr> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>1 1/2" - 4 1/2"</td> <td>7"</td> <td>6 1/2"</td> <td>4 1/2"</td> <td>6"</td> </tr> <tr> <td>5 1/2" - 7"</td> <td>12"</td> <td>10 1/2"</td> <td>8"</td> <td>8"</td> </tr> <tr> <td>7" - 8 1/2"</td> <td>12"</td> <td>10 1/2"</td> <td>8"</td> <td>8"</td> </tr> <tr> <td>9 1/2" - 10 1/2"</td> <td>12"</td> <td>10 1/2"</td> <td>8 1/2"</td> <td>8"</td> </tr> <tr> <td>10 1/2" - 11"</td> <td>16"</td> <td>14 1/2"</td> <td>10 1/2"</td> <td>10"</td> </tr> <tr> <td>13 1/2" - 12"</td> <td>16"</td> <td>14 1/2"</td> <td>12"</td> <td>10"</td> </tr> <tr> <td>12" - 13 1/2"</td> <td>16"</td> <td>14 1/2"</td> <td>13 1/2"</td> <td>10"</td> </tr> <tr> <td>14 1/2" - 15 1/2"</td> <td>20"</td> <td>18 1/2"</td> <td>15 1/2"</td> <td>10"</td> </tr> <tr> <td>15 1/2" - 19 1/2"</td> <td>24"</td> <td>22 1/2"</td> <td>17"</td> <td>10"</td> </tr> <tr> <td>19 1/2" - 24 1/2"</td> <td>34"</td> <td>32 1/2"</td> <td>25 1/2"</td> <td>10"</td> </tr> </tbody> </table>  <p><b>MANHOLE PIPE CONNECTION FOR CAST IN PLACE MANHOLES</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	SUGGESTED PIPE S.D. RANGE (IN.)	HOLE & BOOT DIAMETER DIMENSIONS					A	B	C	D	1 1/2" - 4 1/2"	7"	6 1/2"	4 1/2"	6"	5 1/2" - 7"	12"	10 1/2"	8"	8"	7" - 8 1/2"	12"	10 1/2"	8"	8"	9 1/2" - 10 1/2"	12"	10 1/2"	8 1/2"	8"	10 1/2" - 11"	16"	14 1/2"	10 1/2"	10"	13 1/2" - 12"	16"	14 1/2"	12"	10"	12" - 13 1/2"	16"	14 1/2"	13 1/2"	10"	14 1/2" - 15 1/2"	20"	18 1/2"	15 1/2"	10"	15 1/2" - 19 1/2"	24"	22 1/2"	17"	10"	19 1/2" - 24 1/2"	34"	32 1/2"	25 1/2"	10"
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<h3>SANITARY SEWER STANDARD DETAIL</h3> <p>1. GENERAL -- Cast iron rings, tops, covers, grating and all cast iron fittings shall be sound, true to form and thickness, and neatly finished and shall fit together in a satisfactory manner. Casings shall be clean, uniform and whole without blow or sand holes, deposit, hard spots, shrinkage distortion or any other surface defects which would impair serviceability. Casting surfaces shall be smooth and well-cleaned by shot blasting or other approved cleaning method. Plugging or filling holes or other defects shall not be permitted. Parting fins and pouring gates shall be removed. Sharp edges resulting from fabrication shall be dulled by acceptable method to ensure safety in handling. Casting shall conform to the requirements of the Standard Specification for Grey Iron Fittings ASTM A-48, Class "30 B" for rings and "35 B" for covers and the approved Standard Details for Manhole Rings and Covers.</p> <p>All rings and covers shall be accurately and carefully placed. All rings shall be beaded in a substantial layer of mortar, shall have a full bearing and shall be set to the exact grade. Unless otherwise shown, top of covers shall be flush with or slightly above the surrounding surface. When each cover is placed in any position on the ring, the side play shall not exceed one-eighth (1/8") inch in any direction.</p> <p>2. RINGS -- Rings may be manufactured in accordance with the Standard Detail for Reversible Manhole Rings.</p> <p>3. COVERS --          A. GENERAL -- Manhole covers may be manufactured in accordance with the appropriate Standard Details for Vented or Non-Vented Covers.          B. COATING -- When called for on the plans or specified, the underside of all manhole covers shall be given one (1) coat of asphalt varnish after visual inspection and approval on the job site.          C. APPLICATION -- All lids (covers) in street right-of-way shall be non-vented and include rainward in-flow protectors.</p> <p>4. CASTING WEIGHTS -- The minimum weight of casting will be not less than shown below:</p> <table border="1"> <tr> <td>Ring Only</td> <td>200 LBS</td> </tr> <tr> <td>Cover Only</td> <td>150 LBS</td> </tr> <tr> <td>Totals</td> <td>350 LBS</td> </tr> </table> <p><b>MANHOLE LID / RING GENERAL NOTES</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	Ring Only	200 LBS	Cover Only	150 LBS	Totals	350 LBS	<h3>SANITARY SEWER STANDARD DETAIL</h3>  <p><b>REVERSIBLE MANHOLE RING</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	<h3>SANITARY SEWER STANDARD DETAIL</h3>  <p><b>VENTED MANHOLE COVER</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>	<h3>SANITARY SEWER STANDARD DETAIL</h3>  <p><b>VENTED MANHOLE COVER</b></p> <p>APPROVED BY: <i>MSW</i> DATE: 3/14/14          DATE: 03/13/14 DATE: 03/13/14          ERIC J. WENIGER, P.E., CITY ENGINEER MARISHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR</p>																																																																																		
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The City of  
**Oklahoma City**  
 Utilities Department  
 Engineering Division

NO.	DATE	DESCRIPTION

**SANITARY SEWER STANDARD DETAILS**

DATE: 03/14/14  
 DRAWN BY: JDS  
 CHECKED BY: MWS/EJW

SCALE:  
 AS SHOWN

SHEET NUMBER  
**S-STD-03**



**MacArthur**  
 Associated Consultants

25 N.W. 146th Street - Edmond, OK 73013 - 405.848.2471  
 C.O.A. No. 699 Renewal Date: 06-30-19

OKLAHOMA CITY  
**S-STD-03**

Project No. SC-0997 Sheet No. 69D  
 STATE JOB NO. 17428(88)